

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



DATE: February 25, 2004

TO: Interested Parties

FROM: Nancy Tronaas, Compliance Project Manager

SUBJECT: **Elk Hills Power Project (99-AFC-1C)**
Public Review of Staff Analysis of Proposed Modification
to Allow for a Reduction in PM₁₀ Rates

On January 27, 2004, the California Energy Commission (Commission) received a request from Elk Hills Power to amend the Commission Decision for the Elk Hills Power Project (EHPP). The nominal 500 megawatt, natural gas-fired, combined-cycle power plant is located at the intersection of Elk Hills and Skyline Roads, approximately 25 miles west of Bakersfield, in Kern County. The power plant was certified in December 2000, and it commenced commercial operation in July 2003.

If approved, the proposed modifications will allow for a reduction in the hourly, daily, and annual emission rates for particulate matter less than 10 microns in diameter (PM₁₀). The proposed emission rate reduction is based on refined operating data for similar combined-cycle power plants and EHPP initial source tests, and will allow for the conservation of emission reduction credits by EHP. The San Joaquin Valley Air Pollution Control District approved the reduced PM₁₀ emission rates in November 2003.

Commission staff reviewed the proposed modification and assessed the impacts of this proposal on environmental quality, public health and safety. Staff proposes to revise Air Quality Conditions of Certification AQ-15, -16, -17, -18, and -21, allowing for a reduction in PM₁₀ rates. It is Commission staff's opinion that, with the implementation of revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition has been posted on the Energy Commission's webpage at www.energy.ca.gov/siting. Staff's analysis is attached for your information and review. Staff's analysis and the Order (if the amendment is approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the March 17, 2004 Business Meeting of the Energy Commission. If you have comments on this proposed project change, please submit them to me at the address above, or by e-mail at ntronaas@energy.state.ca.us prior to March 17, 2004. If you have any questions, please call me at (916) 654-3864.

Attachment

Elk Hills Power Project (99-AFC-1)
Request to Amend the Air Quality Conditions of Certification to
Lower PM10 Emission Limits
Prepared by: Joseph M. Loyer
February 10, 2004

Amendment Request

Elk Hills Power, LLC. (EHP) has filed a petition with the California Energy Commission (Commission) to amend the Conditions of Certification AQ-15 through –18 of the Elk Hills Power Project (Elk Hills) to reflect lower hourly, daily and annual PM10 emission limits in order to reduce their PM10 emission reduction credit (ERC) liability as provided for in Condition AQ-63. Additionally, as referenced in Condition AQ-63, staff finds that it is also necessary for the purpose of this petition to modify Condition AQ-21.

Background

EHP was granted a license by the California Energy Commission on December 6, 2000 for a 500 megawatt, natural gas fired, combined cycle facility consisting of two GE Frame 7FA turbines with Dry Low-NOx combustors and heat recovery steam generators (HRSG), oxidation catalyst, ammonia injected selective catalytic reduction system (SCR) and one steam turbine. Elk Hills is located on a 12 acre site approximately 25 miles west of Bakersfield in Kern County, California, within the jurisdiction of the San Joaquin Valley Air Pollution Control District (District).

On October 24, 2001, EHP was granted an administrative modification (pursuant to the Governor's Order D-25-01) to make minor amendments to Condition of Certification AQ-C2. On March 19, 2003, EHP was granted their petition to amend Condition of Certification AQ-21 and appended Conditions of Certification AQ-63 through –65, to allow for tendering of PM10 emission reduction credits (ERC) and allow for excess emissions during the commissioning period. On July 23, 2003, EHP was granted revisions to the Conditions of Certification to allow for an increase in emissions during startup-shutdown phases, increase the size of the emergency fire water pump, and modify the operation of the cooling towers.

Laws Ordinances Regulations and Statutes

No laws, ordinances, regulations or standards will affect the petitioned amendment requests.

Analysis

Condition of Certification AQ-63, provides for EHP to lower hourly, daily, and rolling average twelve-month PM10 emission limits in Conditions AQ-15, AQ-16, AQ-17, and AQ-18, and thereby reduce PM10 offset requirements set forth in AQ-21, based on actual PM10 emissions demonstrated during initial source tests. EHP has performed

the required source test and is recommending the following modifications to the PM10 emission limits.

Air Quality Table 1
Comparison of PM10 Emission Limits Existing to Proposed

Condition of Certification	Existing PM10 Emission Limit	Proposed PM10 Emission Limit	Units
AQ-15	16.2	15.0	Lbs/hr
AQ-16	388.8	360.0	Lbs/day each stack
AQ-17	777.6	720.0	Lbs/day both stacks
AQ-18	283,824	262,800	Lbs/year

Staff has reviewed the most recent available source testing and is reasonably confident that the Elk Hills project can meet and maintain compliance with these PM10 emission limits.

Condition AQ-21 specifies the exact emission reduction credit target amounts for each pollutant to be offset by EHP. Staff finds, through the compliance record, that EHP has surrendered the necessary emission reduction credits in compliance with Condition AQ-21 and District Rule 2201 (employing the proper offset and distance ratios). However, the current Condition AQ-21 does not reflect the reduced PM10 liability or the reality that the PM10 offsets were secured through the use of an interpollutant trade of NOx for PM10. Therefore, staff proposes to substantially modify Condition AQ-21 to reflect the exact emission reduction credit certificates that were surrendered, with their specific amounts for each quarter and their annual totals.

EHP surrendered NOx ERCs for PM10 emission impacts at a ratio of 2.42 lbs of NOx to one lb of PM10 as per the Commission Decision. Revised Condition AQ-21 thus illustrates that NOx ERCs have been surrendered for the PM10 liability in the correct amounts based on the revised and lower PM10 emission rate. The revised offset package fully mitigates the project's revised PM10 emissions.

Conclusions and Recommendations

Staff has analyzed the proposed changes and concludes that there are no new or additional significant impacts associated with approval of the petition. Staff concludes that the proposed changes are based on information that was not available during the original licensing procedures. Staff concludes that the proposed language retains the intent of the original Commission Decision and Conditions of Certification. Staff recommends the following modifications to Conditions of Certification AQ-15, -16, -17, -18 and -21.

Proposed Modifications to the Air Quality Conditions of Certification

AQ-15 Emission rates from each CTG, except during startup or shutdown, shall not exceed any of the following emission limits:

- PM10 ~~46.2~~ 15.0 lbs/hr
- SO2 3.6 lbs/hr
- NO2 15.8 lbs/hr and 2.5 ppmvd @ 15% O2 averaged over 1-hr
- VOC 4.0 lbs/hr and 2.0 ppmvd @ 15% O2 averaged over 3-hr
- CO 12.5 lbs/hr and 4 ppmvd @ 15% O2 averaged over 3-hr
- Ammonia 10 ppmvd @ 15% O2 averaged over 24-hr

[District Rule 2201, 4001 and 4703]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition **AQ-35**.

AQ-16 Emission rates from each CTG shall not exceed any of the following:

- PM10 ~~388.8~~ 360.0 lbs/day
- SO2 86.4 lbs/day
- NO2 752.0 lbs/day
- VOC 184.0 lbs/day
- CO 3948.0 lbs/day

[District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition **AQ-35**.

AQ-17 Emission rates from both CTGs (S-3523-1 and -2) shall not exceed any of the following:

- PM10 ~~777.6~~ 720.0 lb/day
- SO2 172.8 lb/day
- NO2 1103.0 lb/day
- VOC 269.0 lb/day
- CO 4297.0 lb/day.

[District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition **AQ-35**.

AQ-18 Annual emissions from both CTGs calculated on a twelve (12) consecutive month rolling basis shall not exceed any of the following: PM10 ~~-283,824~~ 262,800 lb/year, SOx (as SO2) - 57,468 lb/year, NOx (as NO2) - 335,022 lb/year, VOC - 64,478 lb/year, and CO - 831,008 lb/year. [District Rule 2201]

Verification: The project owner shall provide records of compliance as part of the quarterly reports of Condition **AQ-35**.

AQ-21 ~~Prior to commencement of operation of S-3523-1-0, -2-0, & 3-0, emission offsets shall be tendered for all calendar quarters in the following amounts, at the offset ratio specified in Rule 2201 (6/15/95 version) Table 1, PM10 - Q1: 70,820 lb,~~

~~Q2: 71,608 lb, Q3: 72,394 lb, and Q4: 72,394 lb; SOx (as SO2) – Q1: 14,170 lb, Q2: 14,328 lb, Q3: 14,485 lb, and Q4: 14,485 lb; NOx (as NO2) – Q1: 65,353 lb, Q2: 66,079 lb, Q3: 66,805 lb, and Q4: 66,805 lb; and VOC – Q1: 10,967 lb, Q2: 11,089 lb, Q3: 11,211 lb, and Q4: 11,211 lb. [District Rule 2201]~~

~~Additional NOx emission offsets have been tendered for the following quantities of emission, at the applicable offset ratio specified in Table 4-2 of District Rule 201 (as amended 12/19/02): NOx (as NO2) – Q1: 12,324 lbs, Q2: 12,461 lbs, Q3: 12,598lbs, Q4: 12,598 lbs. [District Rule 2201]~~

~~The requirements of this condition have been meet by the surrendering of the following emission reduction credits: certificates S-1591-1 (VOC), S-1541-5 (SO2) and S-1588-2 (NO2) and the tendering of certificate S-1583-2 (NO2 for PM10).~~

For the purpose of offsetting the project emission impacts and compliance with District Rule 2201, the owner/operator will surrender the following emission reduction credits in the following amounts.

Certificate	Pollutant	Quarterly Totals (lbs)				Annual (lbs)
		First	Second	Third	Fourth	
<u>S-1588-2</u>	<u>NOx</u>	<u>78,424</u>	<u>79,295</u>	<u>80,166</u>	<u>80,166</u>	<u>318,051</u>
<u>S-1622-2</u>	<u>NOx</u>	<u>1,373</u>	<u>1,389</u>	<u>1,404</u>	<u>1,404</u>	<u>5,570</u>
<u>S-1541-5</u>	<u>SOx</u>	<u>16,508</u>	<u>16,888</u>	<u>17,264</u>	<u>17,264</u>	<u>67,924</u>
<u>S-1591-1</u>	<u>VOC</u>	<u>13,160</u>	<u>13,307</u>	<u>13,453</u>	<u>13,453</u>	<u>53,373</u>
<u>S-1583-2</u>	<u>NOx</u> <u>(for PM10)*</u>	<u>177,717</u>	<u>179,693</u>	<u>181,668</u>	<u>181,668</u>	<u>720,746</u>

* Note NOx was traded for PM10 at a ratio of 2.42:1 and all offset ratios were evaluated at 1.2:1 per District Rule 2201.

Verification: ~~The owner/operator shall submit~~ has submitted as of January 22, 2004, certificates of ERCs surrendered to the SJVUAPCD in the totals shown, with copies to the CPM, ~~prior to or upon startup of the CTGs or cooling tower~~